

IAS Mains Botany 1995

Paper-I

Section A

1. Answer any three of the following in not more than 200 words each:
 - a. What are plasmids? How are they related to bacteria?
 - b. Discuss the significance of heterophony seen in selaginella.
 - c. Briefly describe the physiological changes induced in a host plant by a parasite.
 - d. With examples discuss how progressive sterilization of sporogenous tissue occurs in bryophytes.
2. Give a concise account of the life cycle of the causative organism, symptoms and control measures of any four of the following:
 - a. Powdery mildew of Pea
 - b. White rust of Brassica
 - c. Blast of rice
 - d. Little leaf of brinjal
 - e. Damping off of seedlings
3. Answer the following questions
 - a. Give an account of the structure and mode of reproduction of bacteriophage.
 - b. Describe the morphological nature of the sporocarp of marsilea.
 - c. Describe the alternation of generations in Ectocarpus.
4. Answer the following questions
 - a. Describe the life history of Sphagnum.
 - b. Discuss the usefulness of microbes in agriculture.
 - c. Write notes on the following:
 - i. Mycotoxins
 - ii. Megasporeophyll of isoetes
 - iii. Reproductive structures of Chara
 - iv. Heterothallism in Fungi

Section B

5. Answer any three of the following in not more than 200 words each:
 - a. Give an account of the female cone of Pinus.
 - b. What is apomixis? What is its significance in plants?

d. Describe the floral structure of *Musa* along with floral diagram and floral formula.

6. Compare the following

- a. System of classification of plants by Bentham Hooker and Engler & Prantl.
- b. Female gametophyte of *Cycas* and *Gnetum*.
- c. Inflorescence of *Euphorbia* and *Gnetum*.

7. Answer the following questions

- a. Enumerate with brief notes the cytogenetic criteria in biosystematics.
- b. Describe the characteristic features of the family Cucurbitaceae. Give the floral formula and floral diagram. Write botanical names of five plants of the family having economic importance.
- c. Write short notes on:
 - i. Totipotency
 - ii. Orchid flower
 - iii. Pollen sterility
 - iv. Somatic embryo

8. Answer the following questions

- a. Describe the structure and morphological nature of endosperm in angiosperm.
- b. Compare the floral structure of Magnoliaceae with that of Ranunculaceae.
- c. Write a brief account on each of the following:
 - i. male cone of *Cycas*
 - ii. Flower of a grass
 - iii. Leaf anatomy of C₄ plants
- d. Briefly describe each of the following:
 - i. Tetrasporic embryo sac
 - ii. Somaclonal variation
 - iii. Wood of *Gnetum*
 - iv. Polarity
 - v. Flower of Umbelliferae